WHAT IS CLAIMED IS:

1. An optical switch, which appropriately optically connects optical fibers on an input side with optical fibers on an output side, comprising:

an array unit on the input side; and

an array unit on the output side,

the array unit on the input side having: an input side fiber array having signal input optical fibers and at least one adjustment optical fiber; a mirror array having tilt variable mirrors to deflect signal light beams from the signal input optical fibers and at least one fixed mirror to reflect an adjustment light beam from the adjustment optical fiber; and a direction adjustment mechanism that adjusts a relative direction of the mirror array with respect to the input side fiber array,

the array unit on the output side having an output side fiber array having signal output optical fibers.

2. The optical switch according to claim 1, wherein the input side fiber array further includes a light source that emits the adjustment light and a photo detector that detects the adjustment light, the light source and the photo detector are both optically connected with the adjustment optical fiber, the adjustment light beam is caused to travel from the adjustment optical fiber toward the fixed mirror, and the photo detector detects the adjustment light that

has been reflected by the fixed mirror and has entered the adjustment optical fiber.

3. The optical switch according to claim 1, wherein the tilt variable mirrors and the fixed mirror are aligned in a matrix with m rows and n columns (m and n are both natural numbers), and the fixed mirror is thereby on the matrix with m rows and n columns; and

the signal input optical fibers and the adjustment optical fiber are also aligned in a matrix with m rows and n columns in accordance with the former alignment, and the adjustment optical fiber is arranged so as to be opposed to the fixed mirror.

4. The optical switch according to claim 1, wherein the tilt variable mirrors are aligned in a matrix with m rows and n columns (m and n are both natural numbers), and the fixed mirror is thereby off the matrix with m rows and n columns; and

the signal input optical fibers are also aligned in a matrix with m rows and n columns in accordance with the former alignment, and the adjustment optical fiber is thereby off the matrix with m rows and n columns and arranged so as to be opposed to the fixed mirror.

5. The optical switch according to claim 1, wherein the tilt variable mirrors are aligned in a matrix with m rows and n columns (m and n are both

natural numbers), and the fixed mirror is thereby off the matrix with m rows and n columns;

the signal input optical fibers and the adjustment optical fiber are also aligned in a matrix with m rows and n columns, and the adjustment optical fiber is thereby on the matrix with m rows and n columns; and

the optical switch further comprises a positional adjustment mechanism that adjusts a relative position of the input side fiber array and the mirror array in a direction crossing an optical axis of the input side fiber array, so that the adjustment optical fiber is arranged so as to be appropriately opposed to the fixed mirror by the positional adjustment mechanism.

6. The optical switch according to claim 1, wherein the array unit on the output side further has another mirror array having tilt variable mirrors to deflect the signal light beams from the mirror array of the input side fiber array toward the output side fiber array.

7. The optical switch according to claim 1, wherein the array unit on the output side further has a fixed mirror that reflects the signal light beam from the mirror array of the input side fiber array toward the output side fiber array.

8. The optical switch according to claim 1, wherein the mirror array is constituted by a micro electro mechanical system mirror array and manufactured

by the semiconductor micromachine technology.

9. An adjustment method of an optical switch, which is defined in claim 1, the method comprising: irradiating a fixed mirror with an adjustment light beam from an adjustment optical fiber; measuring a light quantity of the adjustment light beam that is reflected by the fixed mirror and returns to the adjustment optical fiber; and adjusting a direction of a mirror array in such a manner that the light quantity of the adjustment light beam to be measured becomes maximum.

10. An optical switch, which appropriately optically connects optical fibers on an input side with optical fibers on an output side, comprising:

an array unit on the input side; and

an array unit on the output side,

the array unit on the input side having: an input side fiber array having signal input optical fibers and at least one adjustment optical fiber; a mirror array having tilt variable mirrors to deflect signal light beams from the signal input optical fibers and at least one fixed mirror to reflect an adjustment light beam from the adjustment optical fiber; and a direction adjustment mechanism to adjust a relative direction of the mirror array with respect to the input side fiber array,

the array unit on the output side having an output

side fiber array having signal output optical fibers.

11. The optical switch according to claim 10, wherein the input side fiber array further comprises a light source to emit the adjustment light and a photo detector to detect the adjustment light, the light source and the photo detector are both optically connected with the adjustment optical fiber, the adjustment light beam is caused to travel from the adjustment optical fiber toward the fixed mirror, and the photo detector detects the adjustment light that has been reflected by the fixed mirror and entered the adjustment optical fiber.

12. The optical switch according to claim 10, wherein the tilt variable mirrors are aligned in a matrix with m rows and n columns (m and n are both natural numbers), and the fixed mirror is thereby off the matrix with m rows and n columns;

the signal input optical fibers and the adjustment optical fiber are also aligned in a matrix with m rows and n columns, and the adjustment optical fiber is thereby on the matrix with m rows and n columns; and

the optical switch further comprises a positional adjustment mechanism to adjust a relative position between the input side fiber array and the mirror array in a direction crossing an optical axis of the input side fiber array, and the adjustment optical fiber is appropriately arranged so as to be opposed to the fixed

mirror by the positional adjustment mechanism.

13. The optical switch according to claim 10, wherein the array unit on the output side further has another mirror array having tilt variable mirrors to deflect the signal light beams from the mirror array of the input side fiber array toward the output side fiber array.

14. The optical switch according to claim 10, wherein the array unit on the output side further has a fixed mirror to reflect the signal light beams from the mirror array of the input side fiber array toward the output side fiber array.